

WHAT IS CLAIMED IS:

1. A circuit for detecting a recorded area of an optical disk, the circuit comprising:
 a counter for detecting an unrecorded area; and
 a counter for detecting a recorded area, wherein
 5 the counter for detecting an unrecorded area receives a reference clock, outputs an
 unrecorded area detection signal as a first output, and outputs a reset signal to the counter
 for detecting a recorded area as a second output and

the counter for detecting a recorded area receives a digitized signal obtained by
 digitizing an RF signal from the optical disk and produces an output serving as a reset
 10 signal for resetting the counter for detecting an unrecorded area and also as a recorded area
 detection signal.

2. The circuit of claim 1, wherein respective times elapsed until the unrecorded
 area detection signal is outputted from the counter for detecting an unrecorded area, until
 the reset signal is outputted to the counter for detecting a recorded area, and until the
 15 recorded area detection signal is outputted from the counter for detecting a recorded area
 satisfy a relationship represented by:

Time Elapsed Until Unrecorded Area Detection Signal is Outputted >
 Time Elapsed Until Reset Signal is Outputted to Counter for Detecting Recorded
 20 Area >
 Time Elapsed Until Recorded Area Detection Signal is Outputted,

wherein the time elapsed until the unrecorded area detection signal is outputted is longest.

3. A circuit for detecting a recorded area of an optical disk, the circuit comprising:
 25 a counter for detecting an unrecorded area;

a counter for detecting a recorded area; and

a counter for detecting a space portion, wherein

the counter for detecting an unrecorded area receives a reference clock and produces an output serving as an unrecorded area detection signal,

5 the counter for detecting a recorded area receives a digitized signal obtained by digitizing an RF signal from the optical disk and produces an output serving as a reset signal for resetting the counter for detecting an unrecorded area and also as a recorded area detection signal, and

the counter for detecting a space portion receives each of the reference clock and
10 the digitized signal to be reset with a mark portion of the digitized signal and outputs the reset signal to the counter for detecting a recorded area.

4. The circuit of claim 3, wherein a time elapsed from a reset until the reset signal is outputted to the counter for detecting a recorded area in the counter for detecting a space portion and a time of a longest space portion of the digitized signal satisfy a relationship
15 represented by:

Time Elapsed Until Reset Signal is Outputted to Counter for Detecting Recorded Area >

Time of Longest Space Portion.

20 5. A circuit for detecting a recorded area of an optical disk, the circuit comprising:

a counter for detecting an unrecorded area;

a counter for detecting a recorded area; and

a counter for detecting a mark portion, wherein

the counter for detecting an unrecorded area receives a reference clock and
25 produces an output serving as an unrecorded area detection signal,

the counter for detecting a recorded area receives a digitized signal obtained by digitizing an RF signal from the optical disk and produces an output serving as a reset signal for resetting the counter for detecting an unrecorded area and also as a recorded area detection signal, and

5 the counter for detecting a mark portion receives each of the reference clock and the digitized signal to be reset with a space portion of the digitized signal and outputs the reset signal to the counter for detecting a recorded area.

6. The circuit of claim 5, wherein a time elapsed after a reset until the reset signal is outputted to the counter for detecting a recorded area in the counter for detecting a mark
10 portion and a time of a shortest mark portion of the digitized signal satisfy a relationship represented by:

Time of Shortest Mark Portion >

Time Elapsed Until Reset Signal is Outputted to Counter for Detecting Recorded

15 Area.

7. A circuit for detecting a recorded area of an optical disk, the circuit comprising:

a counter for detecting an unrecorded area;

a counter for detecting a recorded area; and

a counter for detecting a mark portion, wherein

20 the counter for detecting an unrecorded area receives a reference clock and produces an output serving as an unrecorded area detection signal and also as a reset signal to the counter for detecting a recorded area,

the counter for detecting a recorded area receives an output of the counter for detecting a mark portion and produces an output serving as a reset signal for resetting the

25 counter for detecting an unrecorded area and also as a recorded area detection signal, and

the counter for detecting a mark portion receives each of the reference clock and a digitized signal obtained by digitizing an RF signal from the optical disk to be reset with a space portion of the digitized signal.

8. A circuit for detecting a recorded area of an optical disk, the circuit comprising:

- 5 a counter for detecting an unrecorded area;
- a counter for detecting a recorded area; and
- a counter for detecting a space portion, wherein

the counter for detecting an unrecorded area receives a reference clock and produces an output serving as an unrecorded area detection signal and also as a reset signal
10 to the counter for detecting a recorded area,

the counter for detecting a recorded area receives an output of the counter for detecting a space portion and produces an output serving as a reset signal for resetting the counter for detecting an unrecorded area and also as a recorded area detection signal, and

the counter for detecting a space portion receives each of the reference clock and a
15 digitized signal obtained by digitizing an RF signal from the optical disk to be reset with a mark portion of the digitized signal.

9. A circuit for detecting a recorded area of an optical disk, the circuit comprising:

- a counter for detecting an unrecorded area;
- a counter for detecting a recorded area;
- 20 a counter for detecting a space portion; and
- a counter for detecting a mark portion, wherein

the counter for detecting an unrecorded area receives a reference clock and produces an output serving as an unrecorded area detection signal,

the counter for detecting a recorded area receives a digitized signal obtained by
25 digitizing an RF signal from the optical disk and produces an output serving as a reset

signal for resetting the counter for detecting an unrecorded area and also as a recorded area detection signal,

the counter for detecting a space portion receives each of the reference clock and the digitized signal to be reset with a mark portion of the digitized signal and outputs the
 5 reset signal to the counter for detecting a recorded area, and

the counter for detecting a mark portion receives each of the reference clock and the digitized signal to be reset with a space portion of the digitized signal and outputs the reset signal to the counter for detecting a recorded area.

10. The circuit of claim 3 or 9, wherein the counter for detecting a space portion
 10 halts an operation upon detecting the mark portion of the digitized signal and resumes the operation upon detecting the space portion of the digitized signal.

11. The circuit of claim 3 or 9, wherein the counter for detecting a space portion measures a time elapsed after a reset and outputs the reset signal to the counter for detecting a recorded area when the measured time exceeds a longest space time of the
 15 digitized signal.

12. The circuit of claim 5 or 9, wherein the counter for detecting a mark portion halts an operation upon detecting the space portion of the digitized signal and resumes the operation upon detecting the mark portion of the digitized signal.

13. The circuit of claim 5 or 9, wherein the counter for detecting a mark portion
 20 measures a time elapsed after a reset until a next reset and outputs the reset signal to the counter for detecting a recorded area when the measured time is less than a shortest mark time of the digitized signal.

14. A circuit for detecting a recorded area of an optical disk, the circuit comprising:

25 a counter for detecting an unrecorded area;

a counter for detecting a recorded area;
a counter for detecting a space portion;
a counter for detecting a mark portion; and
a flip-flop circuit, wherein

5 the counter for detecting an unrecorded area receives a reference clock and produces an output serving as an unrecorded area detection signal and also as a reset signal to the counter for detecting a recorded area,

the counter for detecting a recorded area receives an output of the flip-flop circuit and produces an output serving as a reset signal for resetting the counter for detecting an
10 unrecorded area and also as a recorded area detection signal,

the counter for detecting a space portion receives each of the reference clock and a digitized signal obtained by digitizing an RF signal from the optical disk to be reset with a mark portion of the digitized signal and produces an output to be inputted to a reset input of the flip-flop circuit, and

15 the counter for detecting a mark portion receives each of the reference clock and the digitized signal to be reset with a space portion of the digitized signal and produces an output to be given to a set input of the flip-flop circuit.

15. The circuit of claim 7 or 14, wherein the counter for detecting a mark portion outputs a pulse when a time of the detected mark portion is not less than a shortest mark
20 time and not more than a longest mark time.

16. The circuit of claim 7 or 14, wherein the counter for detecting a mark portion measures a time elapsed from a reset until a next reset, compares the measured time with each of a shortest mark time and a longest mark time, and outputs a pulse when the measured time is not less than the shortest mark time and not more than the longest mark
25 time.

17. The circuit of claim 8 or 14, wherein the counter for detecting a space portion outputs a pulse when a time of the detected space portion is not less than a shortest space time and not more than a longest space time.

18. The circuit of claim 8 or 14, wherein the counter for detecting a space portion
5 measures a time elapsed from a reset until a next reset, compares the measured time with each of a shortest space time and a longest space time, and outputs a pulse when the measured time is not less than the shortest space time and not more than the longest space time.

19. The circuit of any one of claims 3, 5, 7, 8, 9, and 14, wherein respective times
10 elapsed until the unrecorded area detection signal is outputted from the counter for detecting an unrecorded area and until the recorded area detection signal is outputted from the counter for detecting a recorded area satisfy a relationship represented by:

Time Elapsed Until Unrecorded Area Detection Signal is Outputted >
15 Time Elapsed Until Recorded Area Detection Signal is Outputted.